RUIYANG SONG

EE PhD student ⋄ Stanford University⋄ ruiyangs@stanford.edu⋄ +1 (650) 250-6277⋄ homepage: rsong.me/

EDUCATION

Stanford University, CA, USA 2016.9-2021.6(expected)
PhD (expected) Department of Electrical Engineering. GPA: 3.97/4.0.

Tsinghua University, Beijing, China 2012.8-2016.7
B.E. Department of Electronic Engineering. GPA: 94/100, ranking 1/240 in Dept. of Electronic Engineering

Georgia Institute of Technology, Atlanta, GA, USA 2014.8-2014.12
Exchange Student in School of Electrical & Computer Engineering. GPA 4.0/4.0

Research interests: machine learning, reinforcement learning, optimization, statistical signal processing, information theory.

Teaching experience: course assistant for EE261 Fourier Transform and Applications in Autumn 2017.

Selected courses: Statistical Learning Theory; Convex Optimization; Statistical Signal Processing; Inference and Estimation; Information Theory; Stochastic Processes; Digital Signal Processing; Probability Theory; Statistics Theory; Deep Learning Theory; Machine Learning.

SELECTED RESEARCH EXPERIENCE

Markov chain stochastic optimization. 2017.9-Present
Advisor: **Prof. Kuang Xu** *Stanford Graduate School of Business*
- Studied the performance of solving dynamic programming problems with divide-and-conquer architecture.

Semi-supervised learning for multi-label classification. 2017.9-2017.12
Advisor: **Prof. Andrew Ng** *and* **Prof. Dan Boneh** *Stanford University*
- Studied medical image classification problems based on the ChestXray14 database using semi-supervised learning methods. (CS229 project)

Data compression algorithm based on Asymmetric Numeral Systems. 2017.2-2017.6
Advisor: **Prof. Tsachy Weissman** *Stanford University*
- Investigated a novel approach of data compression achieving the entropy rate asymptotically based on Asymmetric Numeral Systems.

Compress-and-Estimate source coding with universal purpose encoders. 2015.6-2017.8
Advisor: **Prof. Andrea Goldsmith**, *Stephen Harris Professor in the School of Engineering* *Stanford University*
- Studied the optimal rate allocation and performance loss in compress-and-estimate source coding for Gaussian and binary cases.

Sequential sensing & Online learning. 2014.10-2015.8
Advisors: **Prof. Yao Xie** *and* **Prof. Sebastian Pokutta** *Georgia Institute of Technology*
- Project 1: Robustness of Info-Greedy compressed sensing algorithm for recovering high-dimensional statistical signals.
- Project 2: Online Subspace Tracking and Dimension Reduction.

WORK EXPERIENCE

Investment associate, FoundersX Ventures. 2017.7-2017.9
Supervisors: **Dr. Helen Liang**, **Prof. Tom Kosnik**, *and* **Bill Reichert** *Menlo Park, CA*
- Conducted due diligence on over 40 artificial intelligence oriented startups and interviewed founders from over 10 startups.
- Investigated the academic research progress on computer vision, relational reasoning, autonomous driving, and inductive programming.

PUBLICATION

[C1]**R. Song**, S. Rini, A. Kipnis, and A. Goldsmith, "Compress-and-Estimate Source Coding for a Gaussian Vector Source", *IEEE Inf. Theory Workshop (ITW) 2017.*

[C2]**R. Song**, S. Rini, A. Kipnis, and A. Goldsmith, "Optimal Rate Allocation in Multiterminal Compress-and-Estimate Source Coding", *IEEE Inf. Theory Workshop (ITW) 2016* (pp. 111-115).

[C3]**R. Song**, L. Chen, and Y. Gu, "Performance Estimation of Sparse Signal Recovery under Bernoulli random Projection with Oracle Information", *IEEE Int. Conf. on Digit. Signal Process. (DSP) 2016* (pp. 695-699).

[C4]**R. Song**, Y. Xie, and S. Pokutta, "Sequential Sensing with Model Mismatch", *IEEE Int. Symp. on Inf. Theory (ISIT) 2015.* [arxiv]

[J1]**R. Song**, Y. Xie, and S. Pokutta, "Sequential Information Guided Sensing", *EURASIP J. Adv. Signal Process. [arxiv]*

[J2]Y. Xie, **R. Song**, *H. Dai, Q. Li, and L. Song, "Online Supervised Subspace Tracking", to be submitted to journal. [arxiv]*

HONORS AND AWARDS

The Lawrence Tang Graduate Fellowship Fund 2016
National Scholarship (8 out of 240) 2014 and 2015
Singapore Technologies Engineering China Scholarship (3 out of 240) 2013 and 2014

SKILLS AND OTHERS

Computer: Matlab, C/C++, Python, LaTeX